

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 14 July 2006. Responsive to the rejections made in the Official Action, Claim 1 has been amended to clarify the language thereof and the combination of elements that form the invention of the subject Patent Application. Additionally, Claims 2 and 3 have been canceled by this Amendment.

In the Official Action, the Examiner objected to the Specification due to informalities therein. Accordingly, the Specification has been amended to correct those informalities kindly noted by the Examiner as well as several others found therein. No new matter has been added by these changes.

In the Official Action, the Examiner objected to Claim 1 due to an informality therein and rejected Claims 1-3 under 35 U.S.C. § 102(b), as being anticipated by Williams, U.S. Patent 5,060,603.

Before discussing the prior art relied upon by the Examiner, it is believed beneficial to first briefly review the structure of the invention of the subject Patent Application, as now claimed. The invention of the subject Patent Application is directed to a crankshaft coupling structure used in an engine and coupled between a piston and a crankshaft to enhance the output torque of the engine. The coupling structure includes a connector pivotally connected to the crankshaft. The connector has a radially extended sliding slot spaced laterally from the pivotal connection to the crankshaft. The coupling structure also includes a coupling rod

member. The coupling rod member has a top end pivotally connected to the piston. The coupling structure further includes a coupling member fastened pivotally to a bottom end of the coupling rod member and received in the sliding slot. The coupling member is reciprocatingly movable with the coupling rod member between two distal ends of the sliding slot for varying an eccentricity of the coupling of the coupling rod member to the crankshaft. The coupling member is displaced to a first of the two distal ends having a minimum eccentricity during an up stroke of the piston and displaced to a second of the two distal ends having a maximum eccentricity during a down stroke of the piston to thereby increase the output torque of the engine.

In contradistinction, the Williams reference is directed to an internal combustion engine designed to provide a substantially constant output torque. The Williams reference discloses a coupling between the connecting rod and the crankshaft having a varying eccentricity, wherein the connecting rod is coupled to the crankshaft through a somewhat elliptically shaped slot or groove. The connecting rod coupling moves unidirectionally within the groove as the piston reciprocates within the cylinder of the engine. By that arrangement, the mechanical advantage provided by the eccentricity of the coupling varies inversely with respect to the average pressure provided by the piston. Thus, as the piston force diminishes, as it is displaced from top dead center (TDC), the leverage is increased to provide a more uniform output torque. However, that is at a sacrifice

of maximizing the output torque (by providing maximum leverage at maximum average pressure).

Whereas, in the invention of the subject Patent Application, the coupling member is displaced to the end of the sliding slot that maximizes the leverage upon initiation of the down stroke of the piston to combine maximum leverage and pressure for thereby maximizing output torque of the engine. Thus, nowhere does the reference disclose or suggest a coupling member being reciprocatingly movable with the coupling rod member between two distal ends of the sliding slot for varying an eccentricity of the coupling of the coupling rod member to the crankshaft, the coupling member being displaced to a first of the two distal ends having a minimum eccentricity during an up stroke of the piston and displaced to a second of the two distal ends having a maximum eccentricity during a down stroke of the piston to thereby increase the output torque of the engine. Therefore, as the reference fails to disclose each and every one of the elements of the invention of the subject Patent Application, as now claimed, it cannot anticipate that invention. Further, as the reference fails to suggest such a combination of elements, and in fact teaches away from the invention of the subject Patent Application, in that the referenced structure provides a coupling that moves continuously through a closed path, rather than reciprocate between opposing ends of an arcuate path, it cannot make obvious that invention either.

For all of the foregoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

If there are any further charges associated with this filing, the Honorable Commissioner for Patents is hereby authorized to charge Deposit Account #18-2011 for such charges.

Respectfully submitted,
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